

WILD PLUM

STORM WATER EXHIBIT – SUMMARY LETTER

This letter is prepared in association with the attached Wild Plum Storm Water Exhibit. The purpose of the exhibit is to highlight the storm water treatment and detention measures implemented with the Project. The exhibit and letter address the south portion of the project which is tributary to Pond 1 and ultimately discharges to Cooley Lake. A summary of the exhibit and key points is included below:

1. The project team understood the importance of Cooley Lake from the outset of the project and have taken extensive measures to protect the lake. This began at the onset of the Project with numerous meetings between the project team, South Suburban, Littleton and Columbine Valley staff. Changes to the plans were implemented based on feedback at these meetings and the project team believes that the final product is one which respects the lake and incorporates measures above and beyond minimum requirements as spelled out below.
2. Primary storm water treatment and detention are provided at Pond 1.
 - a. Pond 1 has been designed per the Town of Columbine, Arapahoe County and UDFCD criteria. The storm water design, including the design of this Pond, has previously been reviewed and approved by the Town of Columbine Valley, City of Littleton, South Suburban and UDFCD.
 - b. Water quality treatment is provided via infiltration into the soil. Infiltration test were performed in the location of Pond 1 and showed very good infiltration rates of 12 inches per hour. The **water quality treatment potential was maximized** by designing Pond 1 to be shallow with the greatest filter area possible. The filter area of Pond 1 is the area of the bottom of the pond. The minimum required filter area per code is 4,077 square feet, but the filter area provided with Pond 1 is **78,710 square feet**. This is 74,633 square feet larger than the minimum required area and will ensure that water quality treatment is maximized.
 - c. Storm water is released into Cooley Lake at a rate of 34.7 cubic feet per second (cfs) in the post project condition. This is less than the estimated rate of flow that entered Cooley Lake from the project in the existing condition. The estimated rate in the existing condition is 54.6 cfs. It's worth noting that in the existing condition the land was operated as a farm and horse pasture with no water quality treatment. Pesticides and fertilizers were applied and there were numerous stockpiles of horse manure, some located within floodplain and adjacent to Cooley Lake.
3. A landscape buffer is provided along the entire length of the border to Cooley Lake. This buffer is identified on the exhibit and is to be planted with various native seed mix. It is important to note that this buffer area will **not** be permanently irrigated, will **not** be fertilized and will **not** be treated with pesticides. The seed mix has been reviewed and approved by South Suburban.
4. Secondary storm water treatment is provided throughout the Project by disconnecting impervious surfaces. Two such examples are highlighted on the exhibit as follows:

- a. Area 1 highlighted in grey includes a portion of the residential lots which drain away from the street and to the rear of the lots. A drainage swale collects stormwater from Area 1 and conveys it 420 feet north to the park located in Tract C. This drainage swale is designed with moderate slopes to promote storm water treatment and infiltration into the soil. This is a noteworthy because Area 1 does **not** drain directly to the street, storm drain and ultimately Pond 1. Instead stormwater from Area 1 takes a more indirect route and will be treated twice; once via the drainage swale and a second time at Pond 1.
 - b. Area 2 highlighted in grey includes a portion of the residential lots which drain to the rear of the lot and overland to Pond 1. Similar to Area 1, further water quality treatment is provided by passing the stormwater overland.
5. The project promotes the overland flow of stormwater from the streets to adjacent open space/park areas as much as feasible. Two such locations are identified on the exhibit with a “*” symbol. These two locations are on either side of the park located within Tract C. The storm inlets at these locations have been designed to only capture the minor storm event. Thus during a major storm event, storm water is designed to spill from the street into the park and to numerous depressed or low areas. This provides a water quality benefit in that this storm water is conveyed overland through grassed and native seed areas, instead of taking the storm water directly from the street to Pond 1. This allows for secondary storm water quality treatment and infiltration into the soils.



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LEGEND

AREA 1

PORTION OF RESIDENTIAL LOTS WHICH DRAIN TO THE REAR OF THE LOT AND TO A DRAINAGE SWALE. THE DRAINAGE SWALE PROVIDES SECONDARY WATER QUALITY TREATMENT, PROMOTES INFILTRATION AND DISCONNECTS IMPERVIOUS SURFACE.

AREA 2

PORTION OF RESIDENTIAL LOTS WHICH DRAIN TO THE REAR OF THE LOT AND DIRECTLY TO THE WATER QUALITY AND DETENTION POND, POND 1. THIS DISCONNECTS IMPERVIOUS SURFACE AND PROMOTES WATER QUALITY TREATMENT AND INFILTRATION.

COOLEY LAKE LANDSCAPE BUFFER. AREA IS TO BE PLANTED WITH VARIOUS NATIVE SEED MIX. THIS AREA WILL NOT BE PERMANENTLY IRRIGATED, WILL NOT BE FERTILIZED, AND WILL NOT BE TREATED WITH ANY PESTICIDES.

LANDSCAPE AND/OR OPEN SPACE AREA

DRAINAGE SWALE. PROJECT SWALES ARE SET WITH MODERATE SLOPES (LESS THAN OR EQUAL TO 2%) TO PROMOTE SECONDARY WATER QUALITY TREATMENT AND INFILTRATION.

MAJOR DRAINAGE BASIN BOUNDARY. DEFINES THE PROJECT AREA THAT DRAINS TO POND 1 & ULTIMATELY COOLEY LAKE.

APPROXIMATE EDGE OF COOLEY LAKE & NORMANDY GULCH

OVERLAND FLOW PATH

LOCATION WHERE OVERLAND STORMWATER FLOW IS PROMOTED FROM THE STREETS TO THE ADJACENT PARK/LANDSCAPE AREA. THIS DISCONNECTS IMPERVIOUS AREA AND PROMOTES SECONDARY WATER QUALITY TREATMENT AND INFILTRATION.

